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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,631	02/12/2001	Suzushi Kimura	43890-467	3451

7590 08/13/2003

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Washington, DC 20005-3096

EXAMINER

DINH, TUAN T

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/719,631

Applicant(s)

KIMURA ET AL.

Examiner

Tuan T Dinh

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4 and 6-35 is/are pending in the application.
- 4a) Of the above claim(s) 13-30 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-12 and 31-35 is/are allowed.
- 6) ☒ Claim(s) 1,4 and 6-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The request filed on 07/07/03 for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/719,631 is acceptable and a RCE has been established. An action on the RCE follows.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, 6, 7, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by DiBugnara (U. S. Patent 4,979,076).

DiBugnara discloses a module component (8) as shown in figures 1-4 comprising:

a substrate made of resin (9, column 4, line 27) having a plurality of penetration holes (10-19, column 4, line 39), said plurality of penetration holes (10-19) disposed in said substrate (9) so as to form a matrix of one of aligned rows and aligned columns of said penetration holes (see figures 1, 2, and 4, the rows and columns are aligned in the matrix form);

circuit wirings (21, 31, see figure 3) disposed on both sides of said substrate, and chip components (40-49, column 4, lines 24-25), each having a height almost the same as a depth of each of said penetration holes (see figure 3), said chip components being

Art Unit: 2827

disposed in one of said penetration holes, the component further comprising an auxiliary substrate (51; 61) disposed over at least one side of the substrate (9), the auxiliary substrate (51; 61) is meltable (column 6, lines 1-6); therefore, it fills a gap between the component and the penetration hole. Further, the end of the component and the surface of the substrate are different in color because they are of different material.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over DiBugnara in view of Yamashita (U. S. Patent 5,875,100).

DiBugnara discloses all of the limitation of the claimed invention, except for a height of the component being greater than a depth of the penetration hole.

Yamashita shows a height of a chip component (10, 12) greater than a depth of a penetration hole (21) of a printed circuit board (20) disclosed in figures 1-2, column 3, lines 15-29.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a height of a component greater than a depth of a hole of a circuit board as taught by Yamashita to employ the module component of DiBugnara in

order to provide as power/ground terminals and the heat dissipation properties of the component on the power/ground terminals can be improved.

Allowable Subject Matter

5. Claims 10-12, and 31-35 are allowed.
6. The following is an examiner's statement of reasons for allowance:

Neither the cited prior art nor the prior art cited do not teach or suggest in claimed combination an IC chip mounted on an auxiliary substrate, and a capacitor put in a penetration hole immediately beneath the IC chip to be coupled directly with the IC chip (claim 10), a ground layer disposed beneath a substrate (claims 12, 22, and 34), and the penetration hole being tapered (claim 31).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

7. Applicant's arguments filed 07/07/03 have been fully considered but they are not persuasive.

Applicant argues:

(a). DiBugnara does not disclose a matrix wherein each penetration hole is contained in at least one row and one column of the matrix, and each row and each column of the matrix includes at least two penetration holes.

(b) DiBugnara in view of Yamashita, do not teach, "said chip component having a specified height being greater than the depth of the penetration hole and not projecting from said first and second substrates."

Examiner disagrees.

Response to argument (a), DiBugnara clearly shows in figures 1-2 each of penetration hole (11, 16, 17, and 19) formed in a row and a column to form a matrix such that the row and the column including two penetration holes or a pair of holes (i.e. 11-16 or 16-17).

Response to argument (b), Yamashita clearly shows a chip component (10) having a specified height (including terminals 12) being greater than the depth of the penetration hole (the "penetration" from Merriam Webster's Collegiate Dictionary, pages 858-859, columns 2-3 that defined as pass into, and not require through) and not projecting from said first and second substrates (20, 30).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Art Unit: 2827

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TD
August 10, 2003

John B. Vigustin
John B. Vigustin
Primary Examiner
GRU 2827